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CRITERIA FOR DECIDING TO REMODEL THE EXISTING SCHOOL.

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MODERNIZATION OF SCHOOL BUILDINGS REQUIRES ADAPTATION OF EDUCATIONAL AND ENVIRONMENTAL REQUIREMENTS. PRELIMINARY ANALYSIS OF--(1) CONSTRUCTION QUALITY, (2) ROOM SIZE, (3) SITE CAPABILITY, AND (4) ARCHITECTURAL REMODELING POTENTIAL HELPS TO DETERMINE FEASIBILITY AND APPROACH METHOD. ANALYSIS OF FIVE APPROACHES FOR CREATING ADDITIONS TO A SPECIFIC SCHOOL IS GIVEN IN TERMS OF ADVANTAGES AND DISADVANTAGES. THE APPROACHES ARE--(1) PERIMETER, (2) SHORT LINK, (3) LONG LINK, (4) PLUG IN, AND (5) PHASED CONSTRUCTION. DIAGRAMS AND SKETCHES ARE INCLUDED. (MH)

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Newsletter 16, March 1967

CRITERIA for Deciding to Remodel the Existing School

These remarks are based on a talk by Earl J. Shobe before the Plant Engineering & Maintenance Conference in Chicago in late January of this year. Mr. Shobe is architect for the Cleveland, Ohio, Board of Education.

Every outmoded school in the United States or in Cleveland, for that matter, cannot be replaced with a spanking, new building; so many school systems, Cleveland included, are modernizing some of their school plants to today's standard of education which is constantly on the upgrade. Many visualize rehabilitation of a building in terms of a new paint job, but modernizing a school building requires more imagination. We want our buildings to keep pace with educational requirements and create the proper environment to inspire, stimulate and encourage education.

Some of the components for this transformation are "new" science laboratories, offices, shops, some new corridors or fewer corridors, and redesigned auditoriums. This involves the latest in ceilings, chalkboards, walls, and floors in classrooms and corridors.

When we talk of remodeling an existing school building, we usually visualize an old, run-down building but actually some of us worry for fear the buildings we are presently constructing will be outdated the day they open. Many new buildings are already obsolete design-wise, but here we are discussing the factors of remodeling an older building, one that is basically good in architecture and probably not more than 40 years old—younger than most of us when you stop to think about it, so the buildings definitely are still sound in structure. Many buildings beyond 40 years, after analysis, really are not practical to remodel because of cost factor alone if not for any other reason. Remodeling will add 20 to 30 years to the building life. When your remodeling cost approaches 50% of the replacement cost, you had better look toward a new building. The Milwaukee meeting of the Great Cities Program for School Improvement on November 18, 1966 reconfirmed this "50%." Many experts feel remodeling costs should not exceed 30 to 40% of replacement cost, but others will go up to 70% in some special cases. Buildings built between 1920 and 1940 bear investigation as they are too good and too recent to replace.

The fact is there are many fine older buildings with aesthetic appeal that are functional and economically salvageable. One of the problems is how to upgrade these buildings at a reasonable cost. Here are a few major points, based primarily on personal experience.

1. Save only buidings that were originally good architecture, well-built, and will adapt to up-to-date safety standards at minimum cost.
2. Analyze room sizes. Are they right for present day educational programs? Can team teaching and other innovations be introduced by opening areas with partitions or by removing walls?
3. Location and site expansion are requisites that must be considered.
4. It should be stressed that good architectural design both outside and inside is the prime requisite. How is the structure? Fire resistance? Is the building educationally adequate or can it be made so in terms of light, ventilation, space, size, arrangement, and degrees of alteration and modernization required by the instructional program?

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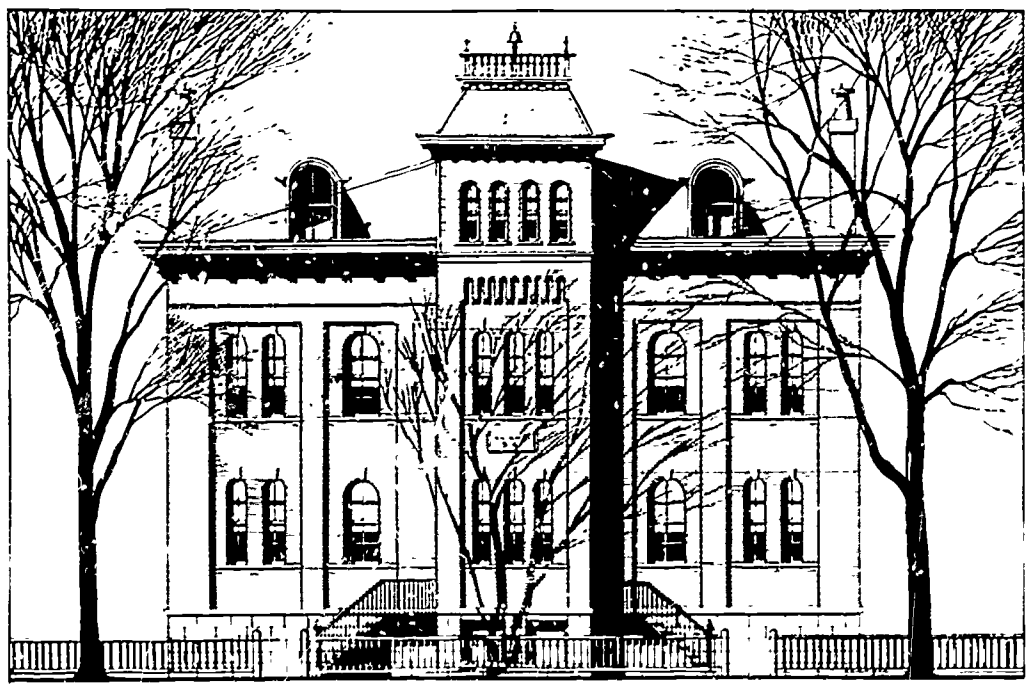
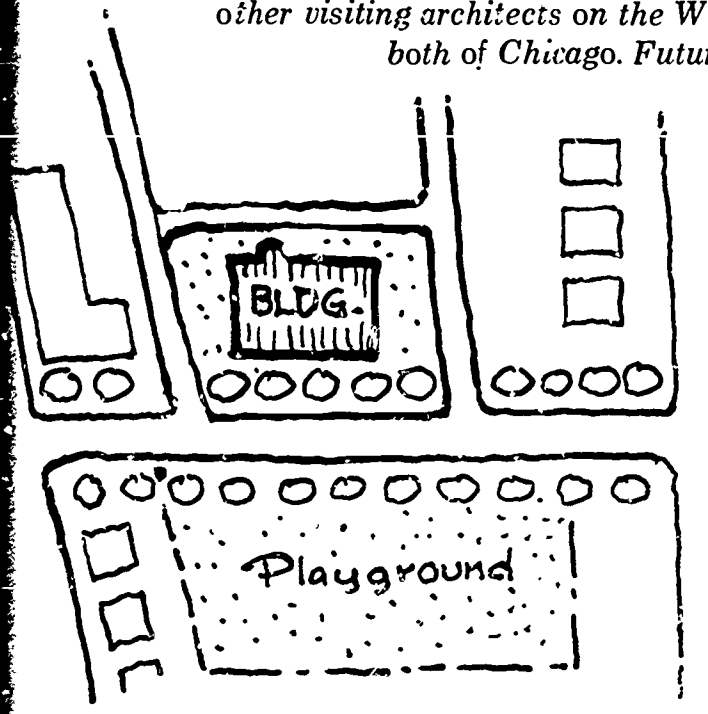


Sketch: Bernard J. Rooney, Associate Superintendent, Board of Education, Buffalo, New York

ADDITIONS

A part of the Pittsburgh Design Study (see Newsletter 15, February 1967), was the problem of additional space to be added to an existing older school. The solutions to the Wightman School Problem presented by the participating students in the Department of Architecture at the Carnegie Institute of Technology fell into several logical and identifiable types. One of the visiting architects, F. Lamar Kelsey, F.A. I.A., Colorado Springs, Colorado, analyzed the advantages and disadvantages of five of the approaches to additions. The other visiting architects on the Wightman School study were Spencer Cone, A.I.A., and Jack D. Train, A.I.A., both of Chicago. Future issues of the Newsletter will include more information on the results of the Pittsburgh Design Study.



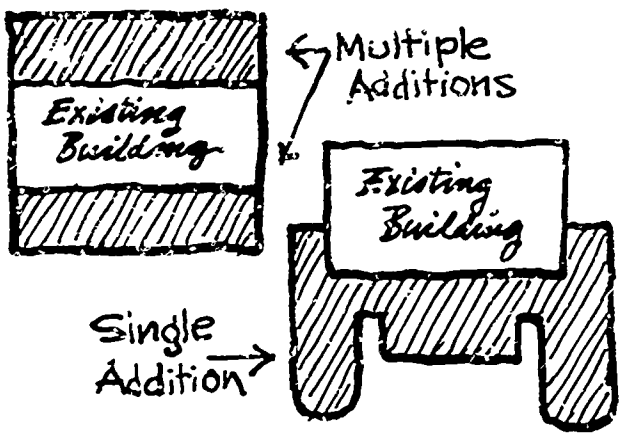
The Educational Specification

"Ideas, rather than masonry, must be the point of beginning if the design of a school is to effectively accommodate the student and the educational program of the future." Based on that concept, the Pittsburgh Public Schools are conducting a detailed evaluation of their educational programs for today's — and — TOMORROW'S child. At this point it would appear that the master educational specification for elementary schools in Pittsburgh will call for a high degree of individualization of instruction involving programmed learning, restructuring of groups of learning, team teaching, and nongraded programming. Such an educational program calls for a facility of great flexibility — a facility which can be molded to fit the educational program which it houses.

The Site

Typical of the urban school, Wightman occupies a far smaller site than its country cousins — the suburban schools. While today's recognized standards call for a minimum site of some 16 acres for a 600 pupil elementary school, Wightman has only three acres. It is obvious that the Wightman site is too small and it is equally obvious that the cost of site acquisition would be considerable. This is the frequent dilemma of the urban school — new or old.

While the site has its limitations (size, a street which divides it, etc.), it also has some elements in its favor. These include a number of handsome trees and a slope which, with careful design, may be used to advantage. Beyond these things, the site is in the heart of the area which it serves — an area of fine, older homes occupied by families interested in a quality education for their children. Thus, while the Wightman site has severe limitations, it is not hopeless. It presents a challenge for the school designer to plan in such a way that the site is used with the greatest possible efficiency.



Perimeter Additions

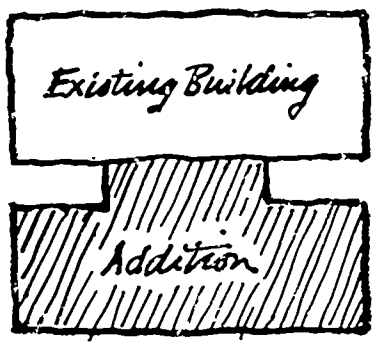
This design concept consists of modernization of the existing building plus the construction of one or more additions closely connected to the perimeter of the old facility.

ADVANTAGES

The perimeter additions relate closely to existing spaces and, by so doing, offer plentiful and direct relationships between all spaces —both new and old—in the building. Chances are good that the resulting floor plans would work well functionally. Due to the compactness of the scheme, circulation spaces should be held to a practical minimum so a majority of the building's space can serve educational purposes. Furthermore, since the connected addition designs cover much of the exterior of the existing building, they offer a way to create an exterior appearance which may be nearly new. The fact that closely connected additions do not occupy great portions of the already limited site speaks well in this behalf.

DISADVANTAGES

Closely connected additions such as the ones in this group could create construction scheduling problems. Since construction of the additions takes place so close to the existing building it is hard to imagine that classes could be continued without more interruptions than the program can tolerate. Such additions require the opening of frequent connections into the existing building and this could create problems of construction as well as difficulty in satisfaction of building codes. Particularly in the case of multiple additions, cost could be fairly high since construction is far more complex than it would be in so-called "LINK" concepts.



Short Link

The concept here is to perform modernization in the existing school and to construct a single addition which is attached to the existing building with a short - wide connecting link.

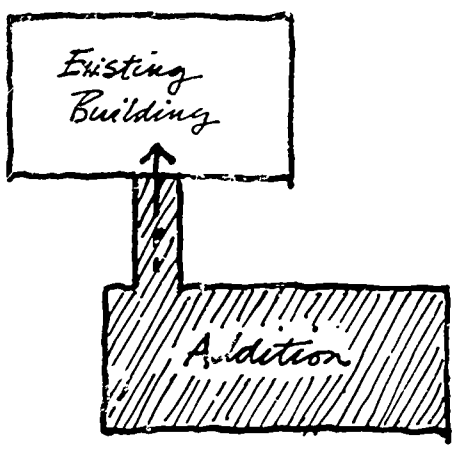
ADVANTAGES

These schemes involve rather "clean" construction procedures. There is adequate room to work

on the addition. It is not so intimately related to the old building that it is forced to become unduly complex. Opening of the connections into the old building can be achieved quickly, thus creating a minimum program interruption. Modernization within the existing building could be done during the summers. (Note—It is likely that construction would be started at the beginning of a summer recess and completed at the end of the summer recess of the following year—thus providing two summer work periods within the existing building). The short connecting link is an ideal place for the provision of new, fire-safe stairways and a logical location of such central elements as the Resources Materials Center.

DISADVANTAGES

A compact plan such as this, combined with the necessary multi-floor concept, provides a massive visual scale that is hardly compatible with small children.



Long Link

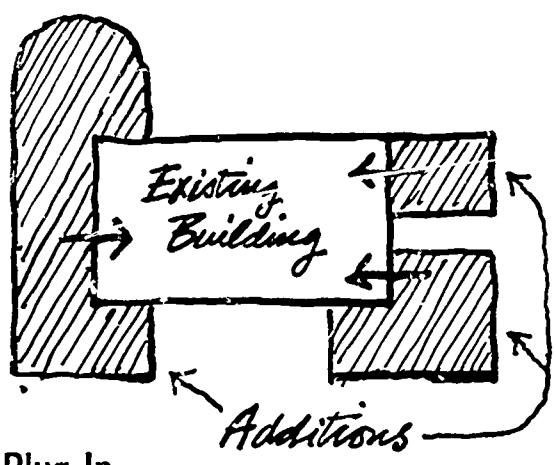
This concept involves modernization within the existing building, plus construction of a nearly free-standing addition. The addition is connected to the existing school with a long-narrow enclosed "link".

ADVANTAGES

The long link schemes have the same advantages as the short link designs only "more so". There is even more room for construction activities and connection into the existing school is even easier. Cost should be favorable, reflecting the greater simplification of procedures, and interruption of activities in the existing school should be very low. The great degree of separation of new from old opens possibilities for a solution which can be most appropriate visually. The existing facility may stand for itself without "false front" pretenses, and the new work may be related in a sensitive manner with a minimum of costly and deceitful compromise. Horizontal lines may now assist in relating the scale of the building to the child. Delightful outdoor spaces may be created between the old and new buildings.

DISADVANTAGES

The long link could be expensive unless it can be used for educational purposes as well as for circulation. Further, this concept may—unless carefully designed—consume more of the limited site than it should. In floor plan, space zoning must be carefully handled to assure proper relationship between spaces in the new and the old portions of the building. However, this could be turned into an advantage by zoning high sound level into one area and low into another.



Plug-In

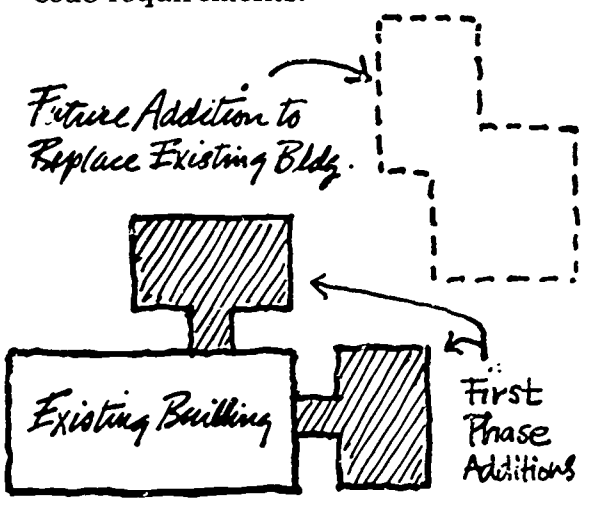
Plug-in additions are simply multiple or even single additions that are inserted into the old building where its structure or floor plan creates logical points of location. As an example, an addition may be "plugged-in" where the outside wall of the existing building may be easily removed since it is located in a manner where it does not carry floor or roof loads. Like most others, this concept calls for modernization of the existing building.

ADVANTAGES

This concept makes efficient use of the existing site. It often adds space where space is most needed and it can, if carefully designed, relate well visually with the existing building.

DISADVANTAGES

Multiple additions will tend to be costly and may also be disruptive to the educational program within the existing building. There is also the possibility that this scheme will prove troublesome when attempting to meet building code requirements.



Phased Construction

This is an entirely different concept. Even though it may be beyond the scope of this project, it seems well worth consideration. It is based upon the premise that only minimum improvements should be made to the existing building for short term use. Additions are planned for immediate construction in order to allow needed expansion of the educational program. A few years later, another construction phase provides replacement of the existing building and, upon full occupancy of the new space, the old building is demolished.

ADVANTAGES

The advantages of this concept are obvious. Through a series of construction phases, an entirely new facility is created. During this process, school is still open and the children accommodated. The new facility has all of the advantages of a new school and makes little compromise to oldness. The student design involves acquisition of additional site which must be considered as an advantage even though a costly one.

DISADVANTAGES

The disadvantage of this scheme is as obvious as are its advantages —it is more expensive to replace the school than to modernize it.

CRITERIA, Cont'd

Criteria that may be used in determining whether a well-built school that was originally good architecture can be saved include:

Classrooms — Are the classrooms too small, too narrow, or both? If so, can partitions be readily removed to enlarge them? If not, abandonment of the building or conversion of it to special use must be considered. Is there an auditorium and can it be made more useful?

Other areas—Office areas in most older buildings just do not come up to present-day standards; so this is one area where enlargement and modernization is needed. Other areas that may be too small and need new layouts are science laboratories, homemaking departments, libraries, kitchens and lunchrooms, music areas, and auto shops.

Corridors—Corridors may not be wide enough to accommodate the traffic flow. If they are not, a possible solution may be that used for the Boulder High School, which was build in 1937. Balcony corridors were installed on the outside of the building.

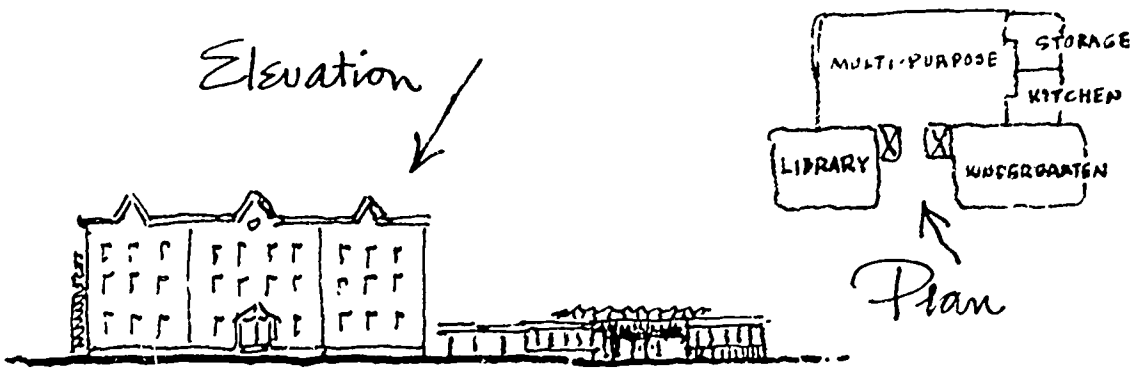
Ceilings and floors — If the ceilings are too high by today's standards, this is good because it makes remodeling easier. Ducts and other services can be run through and covered by modern acoustical ceilings.

Most older buildings have maple floors except in corridors and special rooms, and the custodians love them because they make for easy housekeeping. Most school systems now use resilient tile in new buildings although they are not an ideal type of floor covering to live with. (Neither is carpet.) Here we are looking to the producers for help.

Building services — The need for prevention of air pollution leads to consideration of substituting gas, oil, electricity or a combination of several fuels for the coal systems in most older schools.

New plumbing fixtures are often needed, and new piping will be required to replace galvanized steel or iron. Copper is indicated today. Also rest room facilities for teachers may be required.

In the electrical system, main switchgear, wiring and panels will all need to be replaced if the schools were built some time ago, and the feeds need to be revised and additional outlets added. Also, the lighting system will probably have to be replaced.



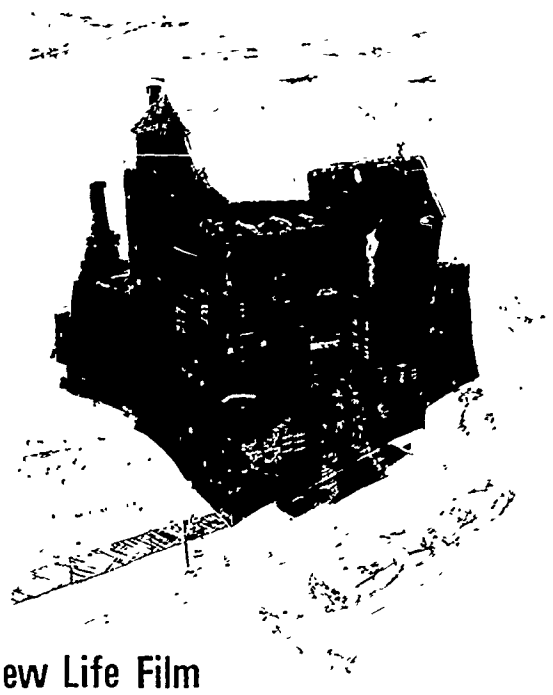
The Satellite buildings in Cleveland serve as relief space that could become the nucleus of a new plant. The Satellite buildings use electric heating and cooling so there is no new load on the old boiler. The Satellite school concept was featured in this year's AASA architectural exhibit.

Satellite buildings—An approach being tried in Cleveland in the case of some of the elementary schools is the construction of a self-contained satellite building to act as a stop-gap until a building too old to remodel can be replaced. A satellite building may contain a combination gym-auditorium, a kindergarten, an elementary library, and a kitchen and is connected to the main building by covered walks. Plans call for this to remain when the main building is replaced.

Conversion — In addition, buildings constructed for other purposes can be converted for school use. The Chicago School District has converted a former candy factory, a warehouse, and a telephone building, and in downtown Cleveland we have remodeled an office and warehouse for special science courses for all the elementary school children in Cleveland.

In 1965 the U. S. Office of Education made known the results of its facility survey of American Schools —30% of our nation's students attend over-crowded classrooms, 2 million boys and girls attend schools with less than adequate heating, 10 million suffer from deficient lighting in their schools, 185,000 do not have running water in their school buildings, and 60,000 have no electricity.

These figures startle and shock most of us. We tend to shrug them off if we don't see some of these conditions in our neighborhoods. But the OE report is painfully accurate and their survey findings serve to point up the real posture of education across our country, and the urgent need to improve basic educational facilities.



New Life Film

This 16mm. sound, color film features examples of good modernization visited by staff members from The Great Cities during a week's flight in the Spring of 1966. Included are programs in Chicago, Toronto, Cleveland, Louisville, Evergreen Park, Illinois, and Englewood and Boulder, Colorado. Interested school districts may schedule the film by writing:

The Research Council Film Library
1825 New Willow Road
Northfield, Illinois 60093

It is suggested that alternate dates be listed.

New Life for Old Schools Newsletter
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BEN. E. GRAVES, *Project Director*

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